CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 85-24

NPDES NO. CA0004961

WASTE DISCHARGE REQUIREMENTS FOR:

TOSCO CORPORATION
AVON REFINERY
CONTRA COSTA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereafter called the Board) finds that:

1. Tosco Corporation, Avon Refinery (hereafter called the discharger) submitted an NPDES Permit Application dated December 22, 1980, and amended it by letters dated June 26, 1981, February 23, 1984, and January 15, 1985 for reissuance of NPDES Permit No. CA0004961.

2. The discharge of wastewater from the facilities is currently governed by Waste Discharge Requirements, Board Order No. 79-49.

3. The discharger operates a petroleum refinery with a crude-run throughput of 103,100 barrels per day. It manufactures gasoline and other hydrocarbon fuels and is classified as a cracking refinery as defined by the U.S. Environmental Protection Agency in 40 CFR 419.20. The discharger also operates a sulfuric acid plant. Treated process wastewater, stormwater runoff, and other wastes as described below are discharged to Suisun Bay, a water of the United States.

4. The reports of waste discharge and recent self-monitoring reports describe the discharges as follows:

   a. Waste 001 consists of an average of 3.1 million gallons per day (mgd) of process wastes, cooling tower blowdown, sanitary wastes, stormwater runoff, and other wastes from the sulfuric acid plant. In addition approximately 0.022 mgd of cooling tower blowdown is received from a nearby carbon-dioxide plant owned by Cardox Corporation. The treated wastes are combined with boiler blowdown, waste from Pacific Gas and Electric Company's Avon Power Plant and approximately 3.4 mgd of water from Hastings Slough prior to discharge through a diffuser which provides at least 10:1 dilution located under the Avon Wharf in Suisun Bay.

   b. Waste 002 is stormwater runoff from the northwestern part of the Tract Four Tank Farm. It normally is combined with Waste 001, but may be discharged through a pipe into a swamp tributary to Walnut Creek near the AT&SF Railway trestle.

   c. Waste 003 is stormwater runoff from the central western part of the Tract Four Tank Farm. It is discharged via a pipe into Walnut Creek north of its confluence with Grayson Creek.

d. Waste 004 is stormwater runoff from the southeastern part of the Tract Four Tank Farm and the Tract Six Tank Farm. It normally is combined with Waste 001, but may be discharged into the head of Hastings Slough.

5. The Board adopted a revised Water Quality Control Plan, San Francisco Bay Basin (Basin Plan) on July 21, 1982, and the State Water Resources Control Board approved it on October 16, 1982. The provisions of this permit are consistent with the objectives of the Basin Plan.

6. The discharger's self-monitoring reports indicate process wastewater (Waste 001) has exhibited acute toxicity. The effluent may therefore contain conservative toxicants which are being discharged to Suisun Bay.

7. The beneficial uses of Suisun Bay, Hastings Slough, and Walnut Creek are:

   a. Water contact recreation
   b. Non-contact water recreation
   c. Navigation
   d. Open commercial and sport fishing
   e. Wildlife habitat
   f. Estuarine habitat
   g. Fish spawning and migration
   h. Industrial uses
   i. Preservation of rare and endangered species
   j. Shellfishing

8. The Basin Plan includes the following prohibition:

   "...It shall be prohibited to discharge:

   All conservative toxic and deleterious substances, above those levels which can be achieved by a program acceptable to the Board, to waters of the Basin."

9. The issuance of waste discharge requirements for this discharge is exempt from the provisions of Chapter 3 (commencing with Section 21110) of Division 13 of the Public Resources Code (CEQA) pursuant to Section 13389 of the California Water Code.

10. Effluent limitation and toxic effluent standards established pursuant to Sections 208(b), 301, 304, and 307 of the Federal Water Pollution Control Act and amendments thereto are applicable to the discharge.

11. Effluent limitation guidelines requiring the application of best available technology economically achievable (BAT) have been promulgated by the U.S. Environmental Protection Agency for the Petroleum Refining Point Source Category 40 CFR Part 419 on October 18, 1982. Effluent limitations of this Order are based on these guidelines, the Basin Plan, State Plans and Policies, current plant performance, and best engineering judgement. The limitations are considered to be those attainable by BAT in the judgement of the

Board.

12. Under 40 CFR 122.44, "Establishing Limitations, Standards, and Other Permit Conditions," NPDES permits should also include toxic pollutant limitations if the discharger uses or manufactures a toxic pollutant as an intermediate or final product or byproduct. This permit may be modified prior to the expiration date to include effluent limitations for toxic constituents determined to be present in significant amounts in the discharge through a more comprehensive monitoring program included as a part of this Order.

13. This Order contains effluent limits based on recent production rates at this facility. The Board is aware that production can vary and commits to expediting reissuance of a new permit upon receipt of an application with new production data.

14. The Board has notified the discharger and interested agencies and persons of its intent to reissue waste discharge requirements for the discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

15. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the discharger, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Federal Water Pollution Control Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Effluent Limitations

1. The discharge of Waste 001 containing constituents in excess of the following limits is prohibited:

Constituent	Units	30-day Average	Maximum Daily
BOD (5-day @ 20°C)	lbs/day	1170	2100
	kg/day	530	954
TSS	lbs/day	933	1460
	kg/day	424	665
COD	lbs/day	8140	15700
	kg/day	3700	7130
Oil and Grease	lbs/day	339	636
	kg/day	154	289
	mg/l	10	20
Phenolic Compounds	lbs/day	6.15	15.7
	kg/day	2.79	7.13
Ammonia as N	lbs/day	636	1400
	kg/day	289	636
Sulfide	lbs/day	6.15	13.8
	kg/day	2.79	6.26
Total Chromium	lbs/day	6.70	19.2
	kg/day	3.05	8.75
Hexavalent Chromium	lbs/day	0.55	1.23
	kg/day	0.25	0.56
Total Zinc**	lbs/day	-	33.0
	kg/day	-	15.0
Settleable Solids	ml/l-hr	0.1	0.2
Soluble BOD (5-day @ 20°C)	mg/l	*	*

* The Board will consider inclusion of limitations for Soluble BOD (defined as non-filterable) based on 18 months of performance data to be obtained as a part of the attached self-monitoring program.

** Incremental over intake water supply.

2. In addition to the 30-day average and daily maximum pollutant weight allowances shown in A.1, allocations for pollutants attributable to stormwater runoff and ballast water discharged as a part of Waste 001 are permitted in accordance with the following schedules:

STORMWATER RUNOFF

Constituent	Units	30-Day Average	Maximum Daily
BOD (5-day @ 20°C)	mg/1	26	48
TSS	mg/1	21	33
COD	mg/1	180	360
Oil and Grease	mg/1	8	15
Phenolic Compounds	mg/1	0.17	0.35
Total Chromium	mg/1	0.21	0.60
Hexavalent Chromium	mg/1	0.028	0.062

BALLAST WATER

Constituent	Units	30-Day Average	Maximum Daily
BOD (5-day @ 20°C)	mg/1	26	48
TSS	mg/1	21	33
COD	mg/1	240	470
Oil and Grease	mg/1	8	15
pH	Within the range of 6.0 to 9.0		

The total effluent limitation for the discharge is the sum of the stormwater runoff allocation, the ballast water allocation and the mass limits contained in A.1. The total effluent limitation (both maximum and average) is to be computed by the discharger on a monthly basis as shown in Part B of the Monitoring Program.

3. Waste 001 shall not contain a chlorine residual in excess of 0.0 mg/1.

4. Waste 001 shall not have a pH less than 6.0 nor greater than 9.0.

5. In representative samples of the effluent, the discharge of Waste 001 shall meet the following limit of quality:

TOXICITY:

a. Until compliance is achieved with the final toxicity limitations pursuant to the schedule specified in Provision No. 13, the LC-50 of the effluent shall not be less than a value of 50.

b. Pursuant to the compliance time schedule specified in Provision No. 13, the LC-50 of threespine stickleback (Gasterosteus aculeatus) test fishes in 96 hour bioassays shall not be less than 100.

6. The discharge of Wastes 002, 003, and 004 containing constituents in excess of the following limits is prohibited:

Constituent	Units	Maximum Daily
Oil and Grease	mg/l	15
TOC	mg/l	110
pH	pH units	6.5-8.5
Visible oil	observation	none
Visible color	observation	none

7. Total coliform bacteria for a median of 5 consecutive samples of Waste 001 shall not exceed 240 MPN/100 ml. Any single sample shall not exceed 10,000 MPN/100 ml when verified by a repeat sample taken within 48 hours.

B. Receiving Water Limitations

1. The discharge of wastes shall not cause the following conditions to exist in waters of the State at any place at levels that cause nuisance or adversely affect beneficial uses:

a. Floating, suspended, or deposited macroscopic particulate matter or foam;

b. Bottom deposits or aquatic growths;

c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;

d. Visible, floating, suspended, or deposited oil or other products of petroleum origin;

e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious

effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.

2. The discharge of waste shall not cause the following limits to be exceeded in waters of the State in any place within one foot of the water surface:

a.	Dissolved oxygen:	7.0 mg/l minimum. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.	
b.	Dissolved sulfide:	0.1 mg/l maximum.	
c.	pH:	The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH levels by more than 0.5 units.	
d.	Un-ionized ammonia (as N):	0.025 mg/l 0.4 mg/l	Annual Median, Maximum at any time.

3. The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Board or the State Water Resources Control Board as required by the Federal Water Pollution Control Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Federal Water Pollution Control Act or amendments therto, the Board will revise and modify this Order in accordance with such more stringent standards.

C. Provisions

1. Waste 001 shall receive an initial dilution of at least 10:1.

2. Discharge of Waste 001 from the oxidation pond to the pump basin of the deep-water diffuser shall occur only when the discharge is necessary to prevent severe damage to treatment facilities or a more adverse effect on receiving waters. The Board shall be notified prior to each use of this alternate discharge point.

3. In the event of repeated noncompliance with Effluent Limitation A.5 - Toxicity, the discharger may be required to submit to the Board a technical report, identifying the conservative and non-conservative toxicants in the process waste effluent and the extent to which each toxicant contributes to the total toxicity.

4. This Order shall serve as a National Pollutant Discharge Elimination System permit pursuant to Section 402 of the Federal

Water Pollution Control Act, or amendments thereto, and shall take effect at the end of ten days from date of hearing provided the Regional Administrator, U.S. Environmental Protection Agency, has no objections.

5. This permit shall be modified or alternatively revoked and reissued to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(c), and (d), 303, 304(b)(2), and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:

   (a) Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or,

   (b) Controls any pollutant not limited in the permit.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

6. The discharger shall comply with the self-monitoring program as adopted by the Board and as may be amended by the Board.

7. This permit may be modified prior to the expiration date to include effluent limitations for toxic constituents determined to be present in significant amounts in the discharge through a more comprehensive monitoring program included as a part of this Order.

8. All applications, reports, or information submitted to the Board shall be signed and certified pursuant to Environmental Protection Agency regulations 40CFR122.41(k).

9. Pursuant to Environmental Protection Agency regulations [40CFR122.42(a)] the discharger must notify the Board as soon as it knows or has reason to believe (1) that they have begun or expect to begin, use or manufacture a toxic pollutant not reported in the permit application, or (2) a discharge of a toxic pollutant not limited by this permit has occurred, or will occur, in concentrations that exceed the specified limits.

10. Order Nos. 79-49 and 80-45 are hereby rescinded.

11. This Order includes all items of the attached "Standard Provisions, Reporting Requirements and Definitions" dated April 1977 except A.5, A.12, B.2, and B.5.

12. This Order expires on February 20, 1990 and the discharger must file a Report of Waste Discharge in accordance with Title 23, California Administrative Code, not later than 180 days in advance of such date as application for issuance of new waste discharge requirements.

13. The discharger shall comply with all specifications and provisions of this order immediately upon adoption except as noted below.

14. The discharger shall comply with Effluent Limitation A.5b. in accordance with the following time schedule:

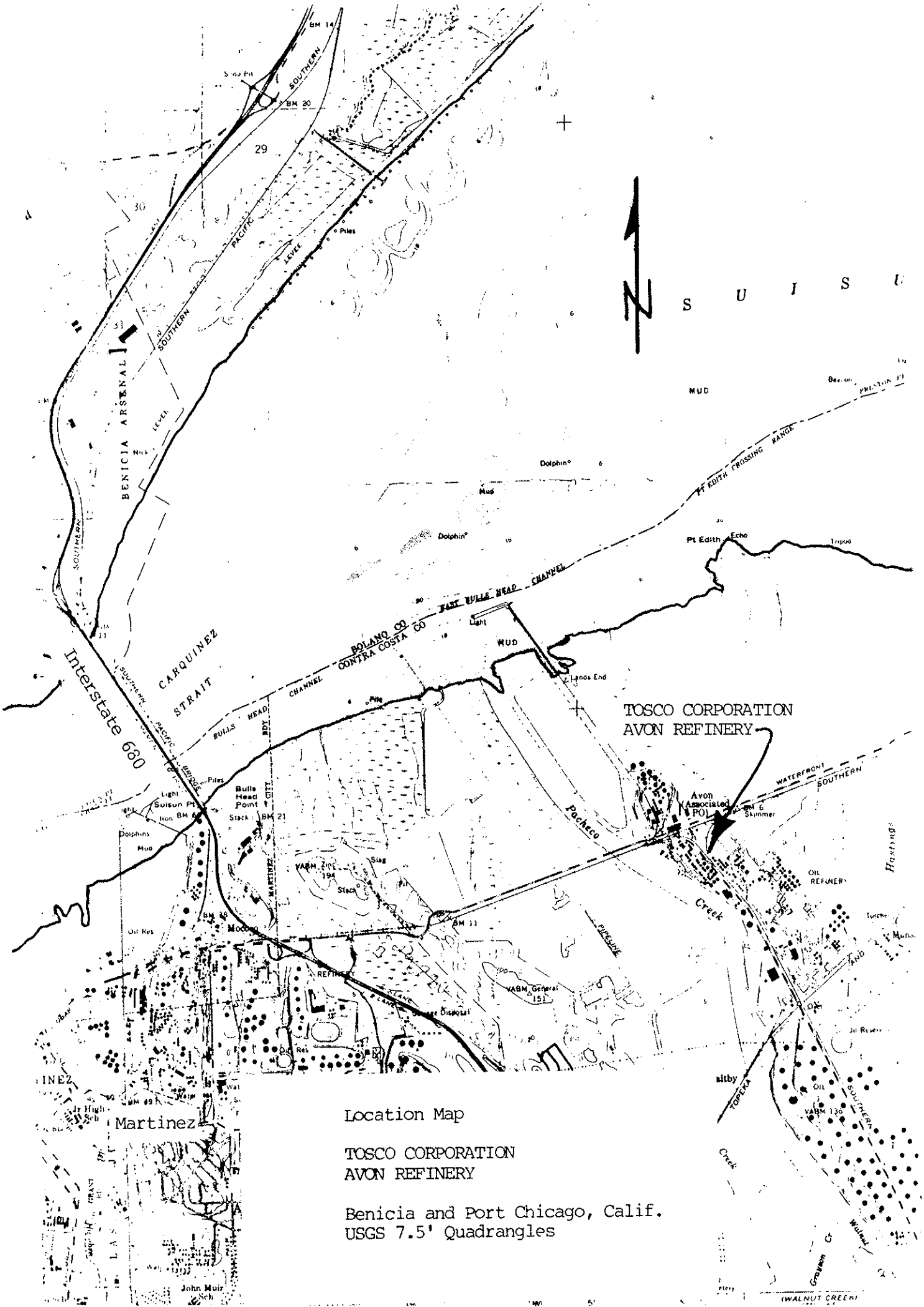
Task	Deadline
Determine sources of effluent toxicity and submit conceptual plan for compliance and, if desired, application for exception to toxicity limitation:	August 20, 1985
Achieve full compliance:	August 20, 1986

The Board will act on any complete application of exception to the toxicity limitation no later than 120 days of its submittal in final form.

I, Roger B. James, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on February 20, 1985.

ROGER B. JAMES
Executive Officer

Attachments:
Location Map
Standard Provisions, Reporting Requirements and Definitions dated April 1977
Self-Monitoring Program


TOSCO CORPORATION
AVON REFINERY
Interstate 680
CARQUINEZ STRAIT
BENICIA ARSENAL
SOUTHERN PACIFIC
BULLS HEAD CHANNEL
CONTRA COSTA CO
SOLANO CO
EAST BULLS HEAD CHANNEL
PT EDITH CROSSING RANGE
Pacheco Creek
Martinez
Location Map
TOSCO CORPORATION
AVON REFINERY
Benicia and Port Chicago, Calif.
USGS 7.5' Quadrangles

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

AMENDED

SELF MONITORING PROGRAM
FOR

TOSCO CORPORATION

AVON REFINERY

CONTRA COSTA COUNTY

NPDES NO. CA 0004961

ORDER NO. 85-24

CONSISTS OF

PART A, dated January 1978

AND

PART B

PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. EFFLUENT

Station	Description
E-001	At any point in the outfall leading to the deepwater diffuser, where all wastes tributary thereto are present and well mixed.
E-001-D1	At any point in the Tract 1 sanitary sewer where adequate disinfection is assured.
E-001-D2	At any point in the Tract 2 sanitary sewer where adequate disinfection is assured.
E-002	At any point in the outfall from the Waste 002 separating sump.
E-003	At any point in the outfall from the Waste 003 separating sump.
E-004	At any point in the outfall from the Waste 004 separating sump.

B. RECEIVING WATERS

Station	Description
C-10	At a point in Suisun Bay, located over the geometric center of the deepwater diffuser.
C-11	At a point in Suisun Bay along the northern face of Avon Wharf and 95-feet generally west-southwest from Station C-10.
C-12	At a point in Suisun Bay 95-feet generally east-northeast from Station C-10.
C-30	An arc in the marsh which receives Waste 002, not more than ten feet from the point of discharge of Waste 002.
C-40	An arc in the drainage channel which receives Waste 003, not more than ten feet from the point of discharge of Waste 003.

C-50	An arc in the drainage channel which receives Waste 004, not more than ten feet from the point of discharge of Waste 004.
C-R1	At a point in Suisun Bay located about 400 feet east northeast from Staion C-10.
C-R2	At a point in Suisun Bay located about 1000 feet west southwest from Station C-10.

II. MISCELLANEOUS REPORTING

A. The discharger shall record the rainfall on each day of the month.

B. The discharger shall determine the stormwater runoff/ ballast water allocation (daily & monthly) for its discharge using the method described in attached Form A. Form A shall be submitted with the monthly self-monitoring report. The daily maximum allocation must be computed for each day Waste 001 is monitored.

C. The discharger shall retain and submit (when required) the following information concerning the monitoring program for organic and metallic pollutants.

   a. Description of sample stations, times, and procedures.

   b. Description of sample containers, storage, and holding time prior to analysis.

   c. Quality assurance procedures together with any test results for replicate samples, sample blanks, and any quality assurance tests, and the recovery percentages for the internal and surrogate standards.

D. The discharger shall submit in the monthly self-monitoring report the metallic & organic test results together with the detection limits (including unidentified peaks). All unidentified (non-Priority Pollutants) peaks detected in the EPA 624 and 625 test methods shall be identified and semi-quantified. Hydrocarbons detected at $\leq$ 10 ug/l based on the nearest internal standard may be appropriately grouped and identified together as aliphatic hydrocarbons, aromatic hydrocarbons, and unsaturated hydrocarbons. All other hydrocarbons detected at >10 ug/l based on the nearest internal standard shall be identified and semi-quantified.

   Note that you may submit your metallic monitoring results in your regular self-monitoring reports or in a separate report within thirty days of the end of each month, as long as you indicate in your regular monthly monitoring report that the metals results will be reported in this separate report.

E. Ballast water treated and discharged as part of Waste 001 shall be metered and the volume recorded in attached Form A for each calendar day. The 30-day average shall be the sum of the daily values in a calendar month divided by the number of days in that month. Ballast-water allocations shall be calculated by multiplying the volume of ballast water, determined above by the appropriate concentration listed under Effluent Limitation A.2. in the permit.

III. SCHEDULE OF SAMPLING AND ANALYSIS

A. The schedule of sampling and analysis shall be that given in Table 1 (attached).

B. Sample collection, storage, and analysis shall be performed according to the latest 40 CFR Part 136 or other methods approved and specified by the Executive Officer of this Regional Board.

IV. MODIFICATIONS TO PART A

Exclude paragraph E-4.

I, Roger B. James, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No.73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Board Order No.85-24.

2. Is effective on the date shown below.

3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger and revisions will be ordered by the Executive Officer or the Regional Board.

ROGER B. JAMES
EXECUTIVE OFFICER

Attachments:
Table 1
Form A

Effective Date FEBRUARY 2, 1987

TABLE 1

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	E-001			E-002 E-003 E-004	All C Stat.	E-001-D1 E-002-D2				
TYPE OF SAMPLE	C-24	G		G	G	G				
Flow Rate (mgd)	cont									
BOD, 5-day, 20°C (mg/l & kg/day)	W									
Chlorine Residual & Dosage (mg/l & kg/day)		W								
Settleable Matter (ml/l-hr. & cu. ft./day)		W								
Total Suspended Matter (mg/l & kg/day)	W									
Oil and Grease (mg/l & kg/day)		(1) W		(1) E						
Coliform (Total or Fecal) (MPN/100 ml) per req't	W					2/W				
Fish Toxicity	(3) W									
Ammonia Nitrogen (mg/l & kg/day)	W									
Soluble BOD (mg/l)	W(9)									
Nitrite Nitrogen (mg/l & kg/day)										
Total Organic Nitrogen (mg/l & kg/day)										
Total Phosphate (mg/l & kg/day)										
Turbidity (Jackson Turbidity Units)										
pH (units)	(2) Cont			E	M					
Dissolved Oxygen (mg/l and % Saturation)		W			M					
Temperature (°C)	Cont				M					
Apparent Color (color units)										
Total Sulfides (mg/l)		W								
Sulfides (if DO<5.0 mg/l) Total & Dissolved (mg/l)					(4) M					
Arsenic (mg/l & kg/day)	W									
Cadmium (mg/l & kg/day)	2M									
Chromium, Total (mg/l & kg/day)	W									
Copper (mg/l & kg/day)	W									
Cyanide (mg/l & kg/day)	W									
Silver (mg/l & kg/day)	2M									
Lead (mg/l & kg/day)	W									
ALUMINUM (mg/l & kg/day)	M									
COBALT (mg/l & kg/day)	M									

TABLE 1 (continued)
SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	E-001			E-002 E-003 E-004	All C Stat.							
TYPE OF SAMPLE	C-24	G		G	G							
Mercury (mg/l & kg/day)	2M											
Nickel (mg/l & kg/day)	W											
Vanadium (mg/l & kg/day)	W											
Zinc (mg/l & kg/day)	W											
Phenolic Compounds (mg/l & kg/day)	W											
All Applicable Standard Observations				E								
Bottom Sediment Analyses and Observations												
Total Ident. Chlor. Hydrocarbons (mg/l & kg/day)												
Total Organic Carbon (TOC) (mg/l & kg/day)				E								
Hexavalent Chromium	W											
Unionized Ammonia (as N)					M							
COD (mg/l & kg/day)	W											
Selenium (10)	W											
Volatile Organics (5)		2Y (7)										
Acid/Base/Neutral Organics (6)		2Y (7)										
Polynuclear Aromatic Hydrocarbons (8)	M											

LEGEND FOR TABLE 1

TYPES OF SAMPLES

G = grab sample
C-24 = composite sample - 24-hour
Cont = continuous sampling
O = observation

TYPES OF STATIONS

I = intake stations
E = waste effluent stations
C = receiving water stations
B = bottom sediment stations

FREQUENCY OF SAMPLING

E = each occurence
D = once each day
W = once each week
2/W = 2 days per week
M = once each month
2M = every 2 months
Y = once each year
2Y = twice each year
cont = continuous

FOOTNOTES FOR TABLE 1

(1) Oil and grease sampling shall consist of 3 grab samples taken at 2 hour intervals during the sampling day, with each grab being collected in a glass container. The entire volume of each sample shall be composited prior to analysis. Each glass container used for sample collection or mixing shall be thoroughly rinsed with solvent rinsings as soon as possible after use, and the solvent rinsings shall be added to the composite wastewater sample for extraction and analysis.

(2) Daily minimum and maximum shall be reported.

(3) The discharger shall determine compliance utilizing flow-through bioassays. Immediately upon the death of over half the test fish, the LC-50 of the discharge shall be determined using at least 4 dilutions in a static bioassay.

(4) Receiving water analysis for sulfides should be run when dissolved oxygen is less than 5.0 mg/l.

(5) Volatile Organic Toxic Pollutants shall be analyzed using EPA Method 624 of the July, 1982, Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057.

(6) Acid and Base/Neutral Extractable Organic Toxic Pollutants shall be analyzed using EPA Method 625 of the July, 1982, Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057.

(7) Grab samples shall be collected coincident with samples collected for the analysis of the regulated parameters. In addition, the grab samples must be collected in glass containers.

(8) Polynuclear Aromatic Hydrocarbons shall be analyzed using EPA Method 610 of the July, 1982, Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater. Note that the samples must be collected in amber glass containers. These samples shall be collected coincident with samples collected for the analysis of the regulated parameters. An automatic sampler which incorporates glass sample containers and keeps the samples refrigerated at 4 C and protected from light during compositing may be used. Note that the 24-hour composite samples may consist of eight grab samples collected at three-hour intervals. The analytical laboratory shall remove flow-proportioned volumes from each sample vial or container for the analysis.

(9) Soluble BOD is defined here as the 5-day, 20^{o}C BOD of filtrate that passes through a standard glass fiber filter as described in Standard Methods for the Examination of Water and Wastewater, 15th Edition, Part 209 B., APHA, AWWA, WPCF, (1980).

(10) Selenium must be analyzed only by the atomic absorption, gaseous hydride procedure (EPA Method No. 270.3/ Standard Method No. 303 E).

FORM A

STORMWATER/BALLAST WATER ALLOCATION PROCEDURE

This procedure uses a bankbook to inventory stormwater. Any stormwater in excess of the estimated processed stormwater is inventoried. Stormwater allocations are calculated using the actual processed stormwater developed in the attached table.

Definitions:

Dry Weather Season - The months of June to September exclusive of a one-week period following any rainstorm.

Estimated Dry Weather Process Wastewater Flow - The average effluent flowrate during the previous dry weather season.

Stormwater Runoff - The product of the inches of rainfall and the runoff factor.

Estimated Processed Stormwater - The difference between the actual effluentflowrate and the ballast water plus dry weather flowrate.

Stormwater Bankbook - Calculated inventoried stormwater.

Actual Process Stormwater - If the stormwater bankbook is not zero, the actual processed stormwater equals the estimated flow. If the bankbook is zero, the actual processed stormwater is equal to the stormwater runoff for that day plus the bankbook for the previous day.

STORMWATER/BALLAST WATER ALLOCATION PROCEDURE

	(A) Rainfall (in.)	(B) Stormwater Runoff (MGal/D)	(C) Effluent Flow (MGal/D)	(D) Dry Weather Effluent Flow (MGal/D)	(E) Estimated Processed Stormwater (MGal/D)	(F) Stormwater Bankbook (MGal)	(G) Actual Processed Stormwater (MGal/D)	(H) Ballast Water (MGal/D)
				Previous Month's Bankbook=				
1								
2								
3								
.								
.								
.								
30								
TOTAL								
AVERAGE								
MAXIMUM								

Column (B) = Column (A) X Runoff Factor

COLUMN (D)= (Dry-Weather Effluent Flow)
+
(Documented Process Water Increment)

Column (E) = Column (C) - Column (D) - Column (H).

Column (F): **Column (F) = Column (F)(Previous Day) + Column (B) - Column (E).**
Column (F) = 0 if Column (F) <0.

Column (G): **If Column (F) >0, then Column (G) = Column (E).**
If Column (F) = 0, then Column (G) = Column (B) + Column (F) previous day.

DATE	MAXIMUM DAILY LIMITS						
	BOD (KG/D)	TSS (KG/D)	(KG/D)	O&G (KG/D)	PHENOL (KG/D)	TOTAL CHROME (KG/D)	HEX. CHROME (KG/D)

Maximum Daily Limit = Effluent Limit A.1. (Daily Max in kg/day) + Stormwater Allocation (Daily Max)

Stormwater Allocation = Effluent Limit A.2. (Daily Max in mg/l) x Daily Processed Stormwater (in mgd) x 3.785 l/gal

ate	Rainfall (Inches)	Storm Runoff Flow (Inches x Runoff Factor) = Gallons	Ballast Flow in gallons
-2			
-3			
-4			
-5			
-6			
-7			
7-8			
8-9			
9-10			
10-11			
11-12			
12-13			
13-14			
14-15			
15-16			
16-17			
17-18			
18-19			
19-20			
20-21			
21-22			
22-23			
23-24			
24-25			
25-26			
26-27			
27-28			
28-29			
29-30			
30-31			
31-1			
Total			
Monthly Average			

MONTH:

YEAR:

A.1. Total Effluent

Monthly Average Allocation + Effluent Limits = Limit

Storm Runoff+Ballast Water Flow Factor (kg/day)

(expressed in thousand Gals/day x (kg /1000 Gals.) = (kg /day) (kg /day)

30-Day Average									
	BOD_5	x	0.098	=	+		=		
Limitation (Kg/day)	TSS	x	0.079	=	+		=		
	TOC	x	0.22	=	+		=		
	COD	x	0.68	=					
	O&G	x	0.03	=	+		=		
	PHENOL	x	0.00064	=	+		=		
	TOTAL CHROME	x	0.00079	=	+		=		
	HEX CHROME	x	0.00011	=	+		=		